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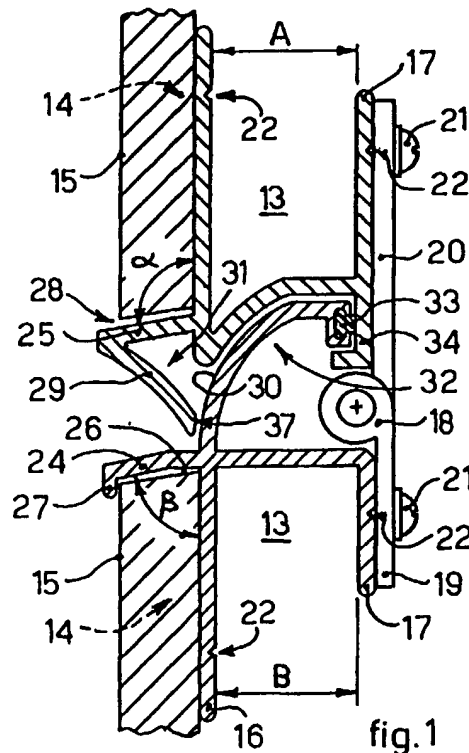
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(54) Door with enhancing horizontal sections

(57) Enhanceable door with horizontal sections, defined by horizontal panels (10) connected to each other by hinges and cooperating at the ends with sliders in guides. The panels have a vertical position of closed space and, by sliding, a substantially horizontal position of open space. The facing horizontal terminal parts of two contiguous panels have respectively a male seating (32) and a female seating (31). The panels (10) have a frame on which the enhancement panel (15) is positioned and applied, the frame has two horizontal profiles. The horizontal profiles (11, 111, 12, 112) have a rear technical compartment (13) and a front enhancement housing compartment (14) suitable to contain the enhancement panel (15). The technical compartment (13) is defined by a rear rib (17) and a front rib (16) able to define one side of the enhancement housing (14). There is at least another side (24, 25) which extends frontally to the front rib (16).



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Description

FIELD OF THE INVENTION

[0001] The present invention concerns doors, or main doors, obtained with horizontal panels, hinged together and having a vertical position of closed space and a horizontal position of open space, between these two positions there being a curved development of connection and union.

[0002] The individual panels cooperate with each other by means of hinges and with guides located laterally by means of positioning and guiding sliders. Said sliders are of various types.

BACKGROUND OF THE INVENTION

[0003] Sectional doors, or main doors, are known.

[0004] Doors, or main doors, with horizontal sections with an enhanceable external face are also known. Such doors normally have the horizontal panels in the form of a frame on which the enhancing elements are attached. The individual frames are connected with each other and with the lateral guides like conventional panels.

[0005] Conventional doors, or main doors, however, have problems in attaching the enhancing elements, problems in that the enhancing elements do not hold over time, and also problems of installation and assembly.

[0006] The Applicant has devised, tested and embodied the present invention which solves the problems of conventional doors to be enhanced and allows other further advantages.

SUMMARY OF THE INVENTION

[0007] The invention is set forth and characterized in the main claim, while the dependent claims describe variants of the invention.

[0008] According to the invention, at least two profiles are made, advantageously but not exclusively aluminum extrusions, which serve to obtain the horizontal elements of the frame which carries the enhancing elements.

[0009] Of these at least two profiles one has at the end a conformation with a female seating suitable to accommodate and house the conformation with a male seating of the other profile.

[0010] Said terminal parts, with the male and female seating, extend with at least second accommodation seatings suitable to accommodate the enhancement panels and thus constitute the base profiles.

[0011] Said accommodation seatings also include means to anchor means to connect and clamp the enhancement panels or elements.

[0012] The base profiles constitute the horizontal elements of the frame which positions and clamps the enhancement panels and, at the same time, can constitute

the anchorage base for the hinges and/or sliders.

[0013] The seatings suitable to accommodate and position the enhancement panels have a development such that any water flows away and does not collect.

[0014] Additionally, the female seating conformation includes a resting seat for a packing in the male seating conformation.

[0015] Furthermore, the female seating conformation includes a front connection element which guarantees that, even in the maximum rotation between one horizontal element and the other, adjacent one, the operator's fingers cannot be caught.

[0016] According to the invention, auxiliary profiles are also provided, to be used in the upper and lower horizontal terminal elements.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The characteristics of the present invention will be apparent from the following description of a preferential form of embodiment, given as a non-restrictive example, with reference to the attached drawings wherein:

- fig. 1 shows the male-female coupling according to the present invention;
- figs. 2 and 3 show examples of the upper and lower panels;
- fig. 4 shows a variant of the hinge according to the invention.

DETAILED DESCRIPTION OF A PREFERENTIAL FORM OF EMBODIMENT OF THE INVENTION

[0018] Fig. 2 shows the lower panel 10 which has a male base profile 11 and a terminal lower profile 111.

[0019] The upper panel 10 (fig. 3) has a female base profile 12 and a terminal upper profile 112.

[0020] The female seating 31 of the female base profile 12 shown in fig. 3 has irrelevant geometric differences with respect to the female seating 31 shown in fig. 1, and other geometric modifications are possible within the spirit of the invention.

[0021] The profiles 11, 111, 12, 112 have a technical compartment 13 which will be confined to the inner part of the door, and an enhancement housing 14 which is in the front part of the panel 10 and which serves to contain and position the enhancement panel 15.

[0022] The profiles 11, 111, 12, 112, in this case, have the technical compartment 13 defined by a front rib 16 longer than the rear rib 17 so as to facilitate operations on the front rib 16.

[0023] According to the invention, the technical compartments 13 of the male base profile 11 and the terminal upper profile 112 have a length B which is equal to the length A of the technical compartments 13 of the profiles 111 and 12 which they are facing.

[0024] According to a variant, the length B is less than the length A, this difference being able to facilitate the

assembly and positioning of the hinges 18.

[0025] The hinges 18 advantageously include a short wing 19 and a long wing 20 and are attached to the respective profiles 11 and 12 by means of rivets or screws 21 which cooperate with the markers 22 present in the profiles.

[0026] The markers 22 also serve to apply the anchoring means, screws, rivets, etc., which solidly connect the enhancement panels 15 to the profiles 11, 111, 12 and 112.

[0027] The terminal profiles 111 and 112 which are normally equal, according to a variant, are different so that the terminal lower profile 111 has two seatings 23 to house rubber elements which cooperate with the floor, while the terminal upper profile 112 has a single seating 23 to house an end-of-travel abutment packing.

[0028] The enhancement housing 14 is defined not only by the front ribs 16 but also by the extensions 24 and 25.

[0029] The extension 24 is at least partly inclined so as to achieve an angle β of less than 90° and comprised between 70° and 85° , advantageously about $78^\circ/79^\circ$.

[0030] The extension 25 is also at least partly inclined so as to achieve an angle α of more than 90° and comprised between 95° and 110° , advantageously about $99^\circ/100^\circ$.

[0031] Between the upper part of the enhancement panel 15 and the extension 24 a dilation chamber 26 is formed, the extension 24 being provided with a retaining tooth 27.

[0032] Between the lower part of the enhancement panel 15 and the extension 25 a compartment 28 is formed which serves to prevent water from collecting in the event of rain, frost, etc.

[0033] The extension 25 of the female base profile 12 has a connection and closing element 29 which with its terminal part 37 cooperates with the curved surface 30 of the male element to prevent the operator from hurting his fingers.

[0034] The female seating 31, on the other side, has an abutment extension 34 which serves as an abutment for the packing housed in the hollow 33 made at the end of the rib defining the curved surface 30.

[0035] The abutment extension 34 has an abutment and stiffening extension 35.

[0036] Said abutment and stiffening extension 35 cooperates with the housing surface 36 for the correct positioning of the hinge 18.

[0037] According to a variant, the hinge 18 has a pin 38 and eyelets 39 connected to the wings 19 and 20. There can be a total of two or more eyelets.

[0038] According to this variant, the eyelets 39 connected to the wing 19 and those connected to the wing 20 define an off-axis hole for the pin 38 to be inserted.

[0039] In this way, during assembly, the hinge 18 rests with the eyelets 39 on the supporting surface 36, while the abutment and stiffening extension 35 rests on the hinge 18, that is, on the eyelets 39.

[0040] This simplifies the assembly and reduces the load on the male and female seatings.

[0041] It should in any case be noted that the rib which defines the curved surface 30 is able to bend, and thus it is always possible to recoup little errors in assembly.

Claims

1. Enhanceable door with horizontal sections, defined by horizontal panels connected to each other by hinges and cooperating at the ends with sliders in guides, said panels having a vertical position of closed space and, by sliding, a substantially horizontal position of open space, the facing horizontal terminal parts of two contiguous panels having respectively a male seating (32) and a female seating (31), said panels having a frame on which the enhancement panel (15) is positioned and applied, said frame having two horizontal profiles, **characterized in that**
 - the horizontal profiles (11, 111, 12, 112) have a rear technical compartment (13) and a front enhancement housing compartment (14) suitable to contain the enhancement panel (15);
 - the technical compartment (13) is defined by a rear rib (17) and by a front rib (16) defining one side of the enhancement housing (14), there being at least another side (24, 25) which extends frontally to said front rib (16).
2. Door as in claim 1, **characterized in that** the rear rib (17) is shorter than the front rib (16).
3. Door as in claim 1 or 2, **characterized in that** the rear (17) and front (16) ribs have markers (22) for the correct positioning of the attachment means.
4. Door as in any claim hereinbefore, **characterized in that** one side extending frontally (24) has at least partly an inclination (β) towards the ground comprised between 70° and 85° , advantageously $78^\circ/79^\circ$.
5. Door as in any claim hereinbefore, **characterized in that** one side extending frontally (25) has at least partly an inclination (α) towards the ground comprised between 95° and 110° , advantageously $99^\circ/100^\circ$.
6. Door as in claim 4 or 5, **characterized in that** the side extending frontally (24 and 25) has a retaining tooth (27).
7. Door as in any claim from 4 to 6 inclusive, **characterized in that** the upper part of the enhancement panel (15) cooperating with the side extending fron-

tally (24) defines a dilation chamber compartment (26).

8. Door as in any claim hereinbefore, **characterized in that** the lower part of the enhancement panel (15) cooperating with the side extending frontally (25) defines a compartment (28) which does not retain water. 5
9. Door as in any claim from 4 to 8 inclusive, **characterized in that** the side extending frontally (24, 25) cooperating with the female seating (31) has a connection and closing element (29). 10
10. Door as in any claim from 4 to 9 inclusive, **characterized in that** the female seating (31) on the opposite side of the side extending frontally (24, 25) has an abutment extension (34). 15
11. Door as in claim 10, **characterized in that** the abutment extension (34) has an abutment and stiffening extension (35). 20
12. Door as in claim 9, **characterized in that** the male seating (32) has a rib defining a curved surface (30) with which the terminal part (37) of the connection and closing element (29) cooperates. 25
13. Door as in any claim hereinbefore, **characterized in that** the rib defining the male seating (32) together with a resting surface (36) has at the end a housing seating (33) for a packing. 30
14. Door as in claims 11 and 13, **characterized in that** it comprises a hinge (18) able to cooperate with the abutment and stiffening extension (35) and with the resting surface (36). 35
15. Door as in the previous claim, **characterized in that** said hinge (18) comprises two wings (19, 20) provided with eyelets (39) off-axis with respect to said wings (19, 20) of the hinge (18). 40

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